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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,318	07/17/2000	David N Roundhill	500789.01	9061

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EXAMINER

JAWORSKI, FRANCIS J

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,318

Applicant(s)

ROUNDHILL ET AL.

Examiner

Jaworski, Francis J.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-107 is/are pending in the application.
- 4a) Of the above claim(s) 59-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-30, 32-39, 42-46, 48, 50-55, 58 and 71-107 is/are rejected.
- 7) ☒ Claim(s) 31, 40, 41, 47, 49, 56 and 57 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. Claims 1 - 27 have been cancelled. Claims 59-70 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 9.

2. Rule 126 renumbering is in effect such that the second numbered claim 70 has been re-numbered as "71" et sequitur.

3. *Claim Rejections - 35 USC § 112*

4. Claims 30, 34, 72, 83 and 93-94 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Insofar as claim 34 makes clear that the term "combiner" in claim 30 embraces a selection switch for mutually exclusive selection between signal alternatives this controverts the usual electronic meaning of such a term in relation to treatment of plural signals such as. 'blending, interpolating, summing, averaging, logic inclusion' and so forth, and therefore the scope of claim 30 is unclear.

6. With respect to claims 72 and 83, 93 no relationship of the contrast agent to the contemporary imaging process or the targeted/monitored site is recited, leaving germane the argument that a contrast agent of another modality could have previously used on the patient for this or for an unrelated purpose.

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7. With respect to claim 94, no further modification of a method step as opposed to a structural refinement is recited.

8.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. Claims 28-30, 32-39, 42-46, 48, 50-55, 58, 71-93, 95-107 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishibashi et al (US5984881 filed March 29, 1996) under a severality of interpretations. Ishibashi et al teaches apparatus and method for an ultrasound imaging system used in conjunction with ultrasound therapy in a non-contrast agent setting for

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producing a three-dimensional image (col.20 lines 23 - 46), the system comprising an ultrasound transducer (16 and possibly also 2), an ultrasound transmitter 17 coupled to the transducer, the transducer being operable to generate a signal having a fundamental frequency (col. 10 lines 40-45 in consideration of 'mode B' operation col. 11 line 60 - col. 12 line 58), a receiver and beamformer 19, 20 coupled to the transducer 16 for depth-dependent reception, a filter (Fig. 2 and attendant passage col. 11 lines 34-49) including an operability to pass signals at f_2 which are a harmonic of the fundamental f_1 (col. 10 lines 4-5 vs col. 10 line 66 - col. 11 line 4, or as supplemented by the italicized statement below), and an image processor 22 (col. 11 lines 20 - 26) operable to generate a three-dimensional image from the output of the filter.

11. Ishibashi et al additionally teaches a Fig. 7 embodiment with generally corresponding parts save that probe 16 is configured to serve an additional filter function (per col. 14 lines 61 - 65) and also an echo filter 54 for this purpose is used (col. 15 lines 23-28) and *explicit teaching is made in col. 15 lines 1-32 that the display product may therefore be a function of the fundamental or harmonic (interpreted to embrace switching therebetween) or both (Summation suggestion, also interpreted to be a 'blend' -claim 89- since additionally the intensity distribution is overlaid or superimposed on the anatomic image.)*. An additional reference to the fact that harmonics are being analyzed occurs in relation to the fourth embodiment col. 18 lines 46-51 otherwise directed to operation of a doppler artifact filter. Alternative still to these concepts, col. 20 lines 1-20 teaches that in the evaluation of intensity distribution itself, harmonics of the f_1 fundamental appear which can serve to mark the heating focus by the non-

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linear intensity effect, and it is in this latter context that the aforementioned later- col. 20 passage relates to three-dimensional imaging.

12. A Doppler processor is selectively operable in all the various embodiments (claims 36-38, 52-54, 78-80, 84-86). And the filtering includes a frequency shift per Col. 30 lines 20-55 (claims 39, 55). Ordinary depth -dependent compensation as well as equalization filtering applies.(claims 32, 48).

13. With respect to claims 76, 77, 90-92, 101-102 in contradistinction to objected-to claim 47 directed to a similar feature, the claim is reasonably met dependent upon where the intensity distribution overlays onto the anatomic image since this determines in turn where the predominantly fundamental and predominantly harmonic components populate the display. Additionally the Fig. 12 embodiment for example relates to moving the focal point (intensity distribution image component) which therefore moves the 'blend' site.

14. With respect to claims 72 and 83, 93 applicants are merely claiming that somewhere prior to treatment a contrast agent (not necessarily even ultrasonic) is applied to facilitate diagnosis of the pathology now being treated.

15. With respect to claims 103-107 the U.S. 5928151 patent claims are rejected by the arguments as detailed above. For example claim 105 (originally 104 prior to re-numbering) is groupable with the Doppler arguments supra, claim 106 (105) is groupable with the 'blending' argument supra, claim 107 by display superposition of Ishibashi et al's frequency analyzer outputs.

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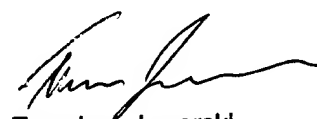
16. Claims 31, 40-41, 47, 49, 56-57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. Claim 94 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Patentability Assessment

The Ishibashi et al patent document bears no imaging subclass search or classification record and therefore was not retrieved by the Examiner until a broad, term-based search not limited to class/subclass was performed, and the rejection issues raised must be addressed prior to set-up of the interference.

Any inquiry concerning this communication should be directed to Examiner Francis J. Jaworski at telephone number 703-308-3061..


Francis J. Jaworski
Primary Examiner

FJJ:fjj

05-19-02